Understanding and Assessing Occupational Concepts

Jeffrey R. Landine
University of New Brunswick
Fredericton, New Brunswick, Canada

Copyright © 2000 Jeffrey Landine
The author owns the copyright of this article. You may photocopy or reprint this article, or sections of it, provided that you acknowledge the author.
Introduction

Why is it important to understand the relationship of concept development to career development and identity? The vast number of new occupational options, along with less job security in more traditional areas of employment, will lead to increasing difficulty for people making decisions about what occupation to pursue or making transitions within the work world. Individuals considering their career-related aspirations, those about to enter the world of work, and those people already in the world of work who are changing their course will need to become increasingly flexible and adaptable in their consideration of occupations. Peterson (1996) asks, “What can we do as career counsellors to enable individuals to acquire self-knowledge, occupational knowledge, career decision skills, and metacognitions to become effective and responsible career problem solvers and decision makers?” (p. 427).

The Cognitive Information-Processing Model

Individuals developing their career in the twenty-first century require information and skills that were unessential a short time ago. The ability to analyze one’s career situation and recognize apparent problems and potential solutions will necessitate an understanding and knowledge of self and occupations, as well as factors such as relationships and responsibilities that affect career decisions. Additional skills and information are necessary to generate and then execute a plausible course of action such as knowing where and how to access information about occupations, the labour market, and job-seeking strategies. Since knowledge structures about the self and occupations grow and change, individuals will also have to be diligent about continually developing and integrating these two areas of development (Peterson et al. 1996).

The Cognitive Information Processing (CIP) paradigm looks at how two types of input contribute to our occupational identity and subsequent decisions. According to Peterson (1996), people use the contents of semantic memory, that part dealing with meaning, and episodic memory, the memory of events in a person’s life, while making career-related decisions. Occupational knowledge is structured hierarchically in semantic memory. Most people know some of the basic tasks of an accountant, could identify where one might work, and could identify some closely related occupations. Even if they had never met an accountant, the word has meaning. Self-knowledge is the product of networks of events stored in
Understanding and Assessing Occupational Concepts

episodic memory. Self-knowledge is acquired through the interpretation and reconstruction of these events. People may believe that they are good at working with numbers because they were repeatedly successful in that area in school. Related events, or episodes, are linked to together forming aspects of the abstract self-concept. Eventually “the ability to work with numbers” as an attribute becomes part of the self-concept and, as that attribute relates to careers, one’s occupational identity. This paper will examine how the contents of semantic memory influence occupational identity.

Long-term memory is usually seen as comprising two types of memory: declarative memory, containing facts or knowledge that can be verbalized as known, and procedural memory, which is the memory of how to do things (Woolfolk 1995). Declarative memory is divided into two distinct domains: episodic and semantic (Tulving 1984). The content of episodic memory is derived from temporal events, meaning that the time when they occurred is important, as well as the time-space relations among them (they are episodes when they are seen as part of a string of events). These are the pictures of things that we have experienced in the past and can recall in terms of time, setting, people, and other sensual data. The content of semantic memory is information organized in the form of concepts and is embedded in schemata, or the abstract structures for organizing information. Information may enter semantic memory independent of episodic memory, but information must be encoded into episodic memory through semantic memory (Tulving and Markowitsch 1998). For example, one might have the experience of helping a carpenter build a house, and the list of tasks and skills involved will be stored semantically, while the actual event is stored in episodic memory. The same information could be derived from reading a book, providing the semantic information without the actual event. It might be suggested, then, that episodic information is stored in some form in semantic memory as well as episodic memory. This might explain the occurrence of phenomena such as unconscious motivators, as when an individual loses the memory of an episode but the concept, and its positive or negative features, remain in semantic memory. Semantic information remembered from events may also lend support to Roe’s (1956) theory of career development which proposed that early childhood experiences give rise to needs that affect career selection. Recall from memory can be made directly from the episodic or semantic domain or both.
Semantic memory contains conceptual information that allows us to make sense of all the sensory information we take in. Concepts are the most basic level of categorization used to group similar events, ideas, objects, or people. Concepts are necessary because they allow us to organize the vast amounts of information our senses receive each day. People develop concepts as they come in contact with individual examples through instruction, reading, experience, etc. Features of the concept are recorded in memory and are used to categorize the information (Rosch and Mervis 1975). Over time, with each successive experience relative to the concept, the concept is strengthened and better defined, and its features become more differentiated in our memory. With each successive experience people gain more information that they attach to the ideal form, the concept. A child might read a story about a blacksmith when she is young and ask questions to gain further knowledge. Later in life, she might see another depiction of a blacksmith in a movie. The concept of a blacksmith that was formed in the first exposure is strengthened with the second. The features of a blacksmith become better defined, and an ideal form for a blacksmith develops. When the child eventually visits a blacksmith, the person she sees working will be compared to that ideal. As we are presented with novel information, we form a prototype or categorization in our mind that, with successive instances, is strengthened by the categorization features or information. In summary, we represent things in the form of schema that capture the central tendency of exemplars, or specific examples (Bourne et al. 1986). With continued encounters with various blacksmiths, we would develop a prototype that captures the central tendency of all the examples. The greater the variety of instances, the more general the knowledge attained.

Categories are represented in memory by schema that consist of the perceptible features of the prototype or best example (which is concrete), and a series of rules (which are abstract) that determine how much variation can be accepted and still remain within the category. One of the perceptible features of an individual’s prototype welder might be that he is a male. If a woman introduced herself as a welder, the individual would have to determine whether or not that category could accept the variation. This second dimension defines any instances in terms of distance—how close or how far from the prototype they are. For some individuals, the example of the welder might fall quite far from the prototype, and the category would have to expand to accept the new information. Other abstract concepts
have been shown to have a prototypical structure, such as a work of art, a science, and a kind of work (Hampton 1982). Situations in which people find themselves have a prototypical structure (Cantor, Mischel, and Schwartz 1982) similar to the idea of scripts that represent our routine knowledge of the world.

It is important to note that concepts are stored hierarchically (Rosch et al. 1976). The basic level has certain characteristics that make it unique. The basic level preserves an optimal amount of information to help differentiate the concept while reducing variation to as few classifications as possible. Being a doctor, for example, has a number of features distinct from other occupations. The superordinate level consists of a few broad categories, each containing many features that differentiate them from one another, but without differentiating between the occupations within the category. The concept of health-care professional would include many features but those features do not help to differentiate between types of health-care professions. The subordinate level shares all the features of the basic level but lacks features that clearly distinguish it from other, similar concepts. The subordinate level touches on many more specific classifications, with little difference between the features. A urologist is sometimes difficult to distinguish from other types of doctors. Developmentally, children have been shown (Mervis and Crisafi 1982) to acquire natural semantic categories best at the basic level (at which attribute differentiation is the key factor).

The importance of semantic memory to occupational identity

What influence, then, does the semantically stored information in our memories have on our occupational identity? We form concepts of work and occupations throughout our lives, based on the information we receive, whether it be episodic or semantic, and whether the process is observational, instrumental, or vicarious (Mitchell and Krumboltz 1996). This information is compared to prototypes and exemplars on a graded membership of categories. A roofer may be seen as very similar to a carpenter and less similar to a technology teacher, even though all three may share similar features. The abundance of information that individuals have about an occupation is directly related to their experiences and the information derived from those experiences. The abundance of information about any one occupation will also influence one’s ability to compare and contrast the occupation with similar occupations. For example, the more
one knows about the work of a typesetter, the more readily one can relate that occupation to similar and different occupations.

How people represent and utilize trait self-knowledge, consisting of abstract information about one’s characteristics, and specific episodic information about trait-related behaviour, is an important aspect of occupational identity. Semantic trait knowledge, or concepts, is formed over numerous behavioural episodes. If a youth discovers an interest in small engines and experiences a degree of success at servicing small engines, he may begin to feel quite competent in this area because of the positive feedback. Over time, these episodes do not need to be retrieved to judge whether a specific trait is part of an individual’s identity, because semantic trait representations will have evolved (Klein, Sherman, and Loftus 1996). With repeated instances of success and recognition, the youth in this example will likely incorporate the concept that “I am good at fixing engines” into his occupational identity, and recall of episodes, positive or negative, will not be necessary to substantiate the concept.

The number of occupational concepts we have and the richness with which they are developed will influence occupational identity in conjunction with self-knowledge. As knowledge of self grows, occupational identity becomes dependent on a widening array of occupational options in the form of occupational concepts. The features of the concepts we hold in semantic memory will also influence the experiences we have in relation to occupations and settings and thereby influence our occupational identity. For example, if one of the features of an individual’s concept of dentist is that the dentist must put his hands into people’s mouths and this is considered dirty, the individual is less likely to want to pursue experiences related to the dental profession and is less likely to incorporate related occupations into his or her occupational identity.

**Application: How do we access client’s concepts and how should we be presenting new occupational information?**

When endeavouring to help students enhance their conceptual understanding of the world of work, we should remember a few key things. The basic level of the hierarchy is where categorization works best. Occupational information should be presented at the basic level of occupational groupings. Describe the characteristics of a doctor before considering health-care professions or the characteristics of a urologist.
The richness and variety of information attached to the concept is important. The more elaborate the concepts, the easier it is to be adaptable within the labour market. The ability to see where skills and competencies can be applied differentially across the labour market enhances the possibility of continued employment. Individuals will distort information to fit their existing knowledge. Counsellors and those people offering occupational information and experiences should be aware that the information may be different once it is assimilated. A student who is told that politicians are paid moderately may actually incorporate the information that they are paid considerably more if they have heard that politicians are overpaid all their life. Working as a labourer for a municipality may be viewed as an easy job if past experiences have shown labourers to be standing around much of the time, regardless of information presented to the contrary.

Counsellors can help students to access and understand the relationships between the occupational concepts in their memories, as well as supplementing the existing schemata in which the concepts are embedded. Then we can provide students with a structure, for example the National Occupational Classification Index, to help organize and compare the schemata, making them more knowledgeable about a greater number of occupations. A variety of methods are available to help students access their own concepts and the way that they are configured in memory. Methods of questioning that are probing and challenging such as “How does your performance in school relate to your occupational aspirations?” enhance the development of occupational and self-knowledge, and questions requiring clients to make decisions quickly allow them to get past potential blocks to recall. Activities involving sorting cards into piles based on prescribed criteria or differentiating among three items help clients to elaborate on their understanding of concepts and the relationships between them. Activities involving concrete exploration such as autobiographies or time lines trace the development of interests and abilities (Peterson et al. 1996). Exercises in concept mapping have been shown to be useful tools in exploring concepts (Wallace and Mintzes 1990). Clients are asked to diagram their understanding of a concept by connecting everything they know about the concept in a hierarchy. Peterson (1996) suggests infusing occupational knowledge into the counselling or teaching process, for example, presenting a client with Holland’s Hexagon along with their Self-Directed Search results. The information derived from
such exercises not only increases occupational knowledge but adds to the individual’s occupational self-concept. Questions about relationships between occupations and interests or performance in particular areas, activities involving classification according to criteria such as income or environment, and storytelling all help clients integrate new information into existing schemata. These techniques encourage the elaboration and complexity of occupational knowledge. Current understanding of individual learning styles will speak to how information is presented. Visual aids, such as videos, samples of equipment, or classification matrices, and imagery tasks, such as drawing yourself into a particular work environment, help students to remember semantic information and to integrate that information more fully into present schemata. Introducing prototypes first speaks to the client’s ability to more easily categorize at the basic level. Have students describe a doctor before beginning a discussion of different branches of medicine. Whatever strategy is used, the lesson should include the name of the concept(s), a definition, relevant and irrelevant attributes, and examples and non-examples (Woolfolk 1995).

The answer to Peterson’s question about acquiring occupational knowledge lies in individuals’ ability to expand the breadth and depth of the occupational schemata in their memory.

**BIBLIOGRAPHY**


